

REMARKS/ARGUMENTS

Reconsideration and withdrawal of the Examiner's rejection of the above-identified application is respectfully requested in view of the foregoing amendments and following remarks. Claims 16-30 are in the application. Claims 16 and 28 have been amended. Claim 21 has been canceled. No new matter has been added.

The Examiner rejected 16, 18-21, 23-24 and 26-27 and 29 as being unpatentable over *Kerber* in view of *Suzuki et al.* and *Dearnaley*. Claims 22 and 25 are rejected over *Kerber* in view of *Suzuki* and further in view of *North*. Claim 17 is rejected over *Kerber* in view of *Suzuki et al* and *Dearnaley* and further in view of *North and Kazakou '971*. Applicants respectfully traverse. Claim 16 has been amended to include the specific thickness ratios and specific non-metallic ions as described in Claim 28, which has been indicated as being allowable by the Examiner. Both claims 16 and 28 now include the word "about" because due to production techniques, the exact thickness ratios stated may not always be achieved in practice, but are the desired goal of the invention.

Kerber teaches only about multilayer coating, which contains successive alternation of two functional layers, one metallic and one ceramic. The patent does not suggest to use three functional layers with the certain ratios of thickness as claimed in claim 16 to provide the improved wear resistance.

The layers according to *Kerber* are 0.1 - 0.5 microns in thickness, and the ratio of thickness of ceramics (0.5 microns) and metallic layer (2.0 microns) is quite different from the claimed invention, which specifies that ceramic layer is thicker than the metal layer (see amended claim 28) and only this condition provides for the improved properties for gas turbine blade application.

US Patent 4,683,149 Suzuki et al describes forming films by means of ion implantation and vapor deposition, which are supposed to be carried out by turns. *Suzuki* also claims an apparatus for this process to increase corrosion resistance or adhesive properties.

US Patent 4,629,631 to Dearnaley teaches about the hardening process of the metal surface by means of sequential implantation of ions into the metal surface and ion-stimulated diffusion.

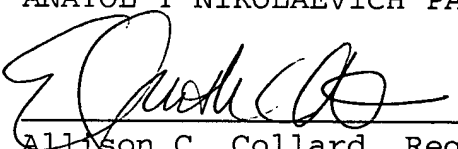
US Patent 3,915,757 Niels N. Engel teaches about the method for ion plating to improve hardness by means of implanting metal ions into the surface of hardened steel or by means of implanting nonmetal ions into metallized surface

Combining the teachings of Kerber with the teachings of Suzuki and Dearnaley or Engels would not lead to the invention claimed in claims 16-30, because none of the cited references teach or suggest the specific thickness ratios taught in the present invention. These ratios are the goal in practicing the present invention, to provide the maximum effect of improving wear resistance. The desired ratio of about 1:2:2.5 indicates that the layer of minimum strength and maximum plasticity should be about half as great as compared to the layer of interstitial solid solutions and about 2.5 times thinner than the layer containing the interstitial phases of maximum hardness and wear resistance. This desired ratio of layers provides the maximum effect for such parts as aircraft blades and power installations that operate under erosive conditions of media containing particles incident on the surface at the attack angle ranging between 0 and 90 degrees. Such ratio provides the maximum erosion resistance and the cited patents do not discuss such a ratio, or any ratio even close to the claimed ratio.

Accordingly, Applicants submit that claim 16, and all of the claims that depend therefrom, as well as claims 28 and 30, are patentable over the prior art, taken either singly or in combination. Early allowance of the amended claims is respectfully requested.

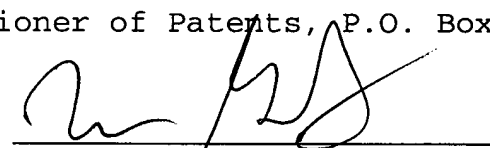
Respectfully submitted,
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